

NAV  AIR

Environmental Program



Aqueous Parts Washers



Effective Equipment for Cleaning and Degreasing Operations

Proper use of Aqueous Parts Washers is critical to successful cleaning and degreasing operations. The right equipment, operated at the right temperature with approved materials will ensure success.

Background

High-pressure cabinet-style aqueous parts washers are used throughout the Naval Air Systems Command (NAVAIR) to accomplish gross cleaning and degreasing operations for engine and aircraft components. NAVAIR 01-1A-509 authorizes the use of MIL-PRF-29602 aqueous cleaners, which are available in liquid and powder form. Some of the detergent solutions also contain rust inhibitors. Before using these parts washers for specific components, personnel need to consult the cognizant engineering authority or the Lead Maintenance Technology Center for the Environment (LMTCE) help desk (<https://www.enviro-navair.navy.mil>) to ensure there is proper authorization for the specific cleaning processes. For example, support equipment bearings may be cleaned in parts washers but aircraft bearings may not.

Parts washers consist of a cabinet with spray nozzles along the walls and ceiling and range in size from 75 to 400 gallons. Heated, high-pressure water and detergent are directed at parts placed in baskets or on rotating shelves to remove grime, oil and dirt. Some units have a rinse cycle and a hot air drying cycle. The purifying/recycling closed-loop washers with oil skimmers and filters may reuse the same detergent solution, further minimizing operating costs.

Implementation

Parts washers are available in various sizes and from a variety of vendors. For optimal performance all parts washers should operate at the manufacturer's recommended temperature, typically between 180 and 195 degrees Fahrenheit. The parts washers use MIL-PRF-29602 detergent at the manufacturer's recommended concentrations.

Critical to the successful operation of any parts washer is periodic testing of the detergent to insure the proper concentration of wash



Key Operating Parameters

- Ensure maintenance manual authorizes cleaning using aqueous parts washers.
- Pre-clean parts if necessary.
- Maintain temperature per manufacturers recommendation, typically between 180 and 195 degrees Fahrenheit (F).
- Maintain solutions at recommended concentrations.
- Test solution in parts washer regularly and add detergent when necessary.

solution. Each of the approved MIL-PRF-29602 detergents has its specific titration procedure.

Some of the authorized and available detergents are listed below. These come with a test kit. The detergents are available in either liquid or powder concentrate. The National Stock Numbers (NSNs) for each are as follows:

Liquid Concentrate

- 6850-01-431-2269 GL (1 gallon)
- 6850-01-431-2267 CN (5 gallons)
- 6850-01-431-2268 DR (55 gallons)

Powder Concentrate

- 6850-01-053-2789 LB (1 pound)
- 6850-01-431-9025 CO (50 pounds)
- 6850-01-431-9024 DR (400 pounds)

The liquid concentrate dissolves more readily and is therefore preferable to the powder. The liquid 5-gallon size is the quantity most commonly ordered.

Operating Checklist

A checklist for ensuring operating efficiency of parts washers follows.

1. Remove gross contamination from parts before placing them in the parts washers in order to prolong solution life. For parts washers with timers, program the oil skimmers to run during times when the solution is cool for complete oil removal.
2. Heat the solution up to operating temperature before starting the wash cycle. Running the parts washer at a lower temperature causes inadequate cleaning and may create foaming problems with the detergents.
3. Maintain the MIL-PRF-29602 detergent concentration at the manufacturer's recommended concentration.
4. Test the detergent concentrations regularly using the test kits provided by the detergent manufacturers. The kits provide simple step-by-step instructions for determining the concentration in the parts washer solution, and instructions for making any necessary additions of detergent. After completing the test for concentration, the resulting test liquid may be safely disposed of down normal drains.
5. Keep filters and oil skimmers operational with routine maintenance.

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For more information about the NAVAIR environmental program, please visit our web site at <https://www.enviro-navair.navy.mil>.

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